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NORTH CAROLINA

AGRICULTURAL EXPERIMENT STATION

OF THE

COLLEGE OF AGRICULTURE AND
MECHANIC ARTS

WEST RALEIGH

FIG CULTURE IN NORTH CAROLINA

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N. C. COLLEGE OF AGRICULTURE AND MECHANIC ARTS

THE NORTH CAROLINA

AGRICULTURAL EXPERIMENT STATION

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Visitors are at all times cordially invited to inspect the work of the Station, the office of which is in the new Agricultural Building of the College.

Address all communications to

N. C. AGRICULTURAL EXPERIMENT STATION,
WEST RALEIGH, N. C.

FIG CULTURE IN NORTH CAROLINA.

By F. C. Reimer, Horticulturist.

The Station is constantly receiving inquiries regarding fig culture in this State, and requests for literature on the subject. Judging from the large number and the nature of the inquiries, there seems to be considerable interest in the subject. Most of these inquiries pertain to the culture of this fruit; but a great many are in reference to the cause and remedy of the dropping of the immature or green

Fig. 1.—Excellent Fig Tree.

figs. As the Station has heretofore never published a complete bulletin on the subject, it has been unable to supply the demand for such literature.

The writer feels that a publication of this kind is needed. He is convinced that the fig should be more widely grown, especially in the eastern half of the State. He knows of fig trees in most of the eastern counties, growing luxuriantly and bearing good crops even

under the greatest neglect. The fig is one of the finest fruits for home use grown in the South. It is delicious and wholesome when eaten fresh and fig preserves are the standard of excellence. The home fruit orchard is almost a thing of the past on many North Carolina farms, due to the large number of new insects and diseases which have been brought in during the past twenty-five years. Fortunately, the fig is not seriously affected by these troubles, and can be grown without the constant use of the spray pump.

Furthermore, the fig is one of the most profitable fruits grown in the Upper South. Fig culture is really in its infancy; and very few people realize the possibilities of the industry. Even most of those who have grown this fruit for home use do not know that by selecting the proper varieties and by using proper methods figs can be shipped to the large distant markets. The writer knows of one acre of figs at Raleigh, North Carolina, which has during the past five years probably netted the owner greater returns than any acre in other fruits in the eastern half of the State.

SUITABLE LOCALITIES.

Eastern North Carolina is favorably situated for the growing of figs for market. It is practically the northern limit of commercial fig culture in the Eastern States. This gives the grower a distinct advantage over the grower farther south, as he is nearer the large Northern markets. The fruit is very perishable and can not be shipped long distances, unless picked when in a very immature condition. To pick it long before it has properly ripened means a fig of very poor quality, as this fruit develops high quality only when allowed to ripen on the tree. The fruit grown in this State need not be picked for shipment until practically ripe. The express rates are also considerably less on fruit shipped to the North from this State than from sections farther south.

CLIMATIC REQUIREMENTS.

The climate of the eastern half of this State is well suited to the growing of figs; and in this respect this section has a distinct advantage over the Lower South. Strange as it may seem the fig tree is often more severely injured by cold weather in the Lower South than in this State. This is due principally to the marked changes in weather during the winter in that section; as, long warm periods suddenly followed by cold weather. The fig is very sensitive and starts into growth quickly during such warm spells, and then is readily injured by cold weather. As long as the trees of our hardy varieties of figs remain dormant, they are seldom injured by cold. It is very rarely that we have enough warm weather during winter in this State to start our leading varieties into growth, and it is therefore seldom that they are severely injured by cold.

The climate of this State during summer is also well suited to the fig. For best results the first half of the summer should be relatively moist with a heavy rainfall, so as to produce long, vigorous branches, which are necessary for a large crop of fruit. The last of the summer and early fall, while the fruit is ripening, should be dry with a great deal of sunshine to prevent the souring of the fruit and to develop sugar and flavor. The climate here corresponds very well with these requirements. While considerable rain falls during August, this usually comes in a few heavy showers, and the month is characterized mostly by hot, bright, sunny weather. The bulk of our figs for market are harvested during September, while the weather is very dry, with intense sunshine—the ideal conditions for the maturing of figs.

The fig can be grown in any section of the State east of the mountains, but usually needs some protection in the Upper Piedmont; and it should never be grown there except for home use. The Coastal Region and the Lower Piedmont are well adapted to this fruit. The most favored sections are found in the extreme eastern part of the State, along the coast. There the winters are mild, with so little variation that very old fig trees have never been seriously injured by cold. In the Piedmont section excellent trees are found as far west as Caswell and Rowan counties, but these are of the hardiest varieties and are well protected from severe cold winds. The western limit of commercial fig culture in this State can not be definitely designated, as much depends on local conditions and the variety planted. An elevation above sea-level of one hundred feet in the northern part of the State, four hundred feet in the central part, and five hundred feet in the southern part roughly indicates this limit.

SOIL.

The fig can be successfully grown on a greater variety of soils than most other fruits. It is grown on all soils, ranging from the light sandy soils along the coast to the heavy, tenacious red clay soils of the Piedmont section; and from the low, moist, marshy soils in the coastal region to the high, dry soils of the sand hill region. But this does not mean that it does equally well on all soils.

The best soil for the figs generally grown in this State is a well-drained, moist, mellow, sandy loam well filled with humus. It should contain an abundance of lime, especially if the figs are to be shipped long distances, and where the best quality is desired. The basis for such soils is found in many places in the coastal section, where the soil contains large deposits of sea shells and considerable marl. By good drainage and the addition of humus these soils can be made almost ideal for figs. In fact most of the soils in this section will answer very well if an abundance of humus is incorporated, to conserve moisture during long dry seasons.

The heavy clay soils of the Piedmont section will not produce a fig of the highest quality no matter what treatment is given. Such soils produce a coarse fig deficient in sugar and in shipping qualities. Still such soils, when thoroughly drained and loosened up with large quantities of vegetable matter, can be made to produce very satisfactory crops of figs. Then too, these clay soils have a distinct advantage in that the nematode worm does not attack the fig seriously on such heavy soils.

PROPAGATION.

The fig is easily propagated by cuttings, layering, ring-budding, and grafting. In this State, propagation by cuttings is the easiest

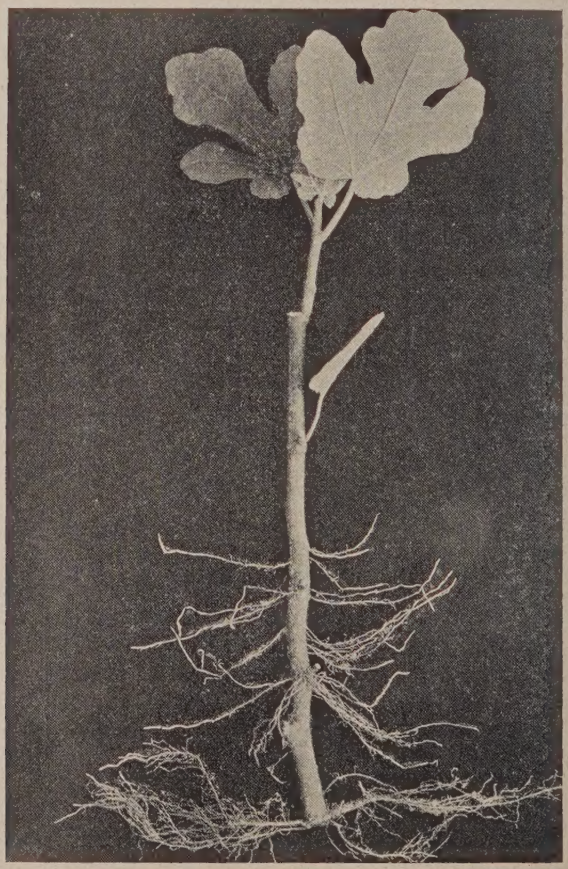

Fig. 2.—Well Rooted Fig Cutting.

and most satisfactory way. The work can be done at almost any time of the year; but by far the best results are obtained if done during the winter while the plant is dormant.

The cuttings should be taken from strong, healthy plants of the desired variety and preferably from plants growing in the immediate locality. Select the one-year-old branches that are plump and stocky, which are usually found on the outside, where they were well exposed to the light. Do not take the long, slender shoots or suckers found on the base of the plant.

A good cutting should be at least one foot long, or preferably longer. The cut ends should not expose any pith, but the hard wood of the partition found at the node. The cuttings should not be allowed to dry out, or become shrivelled; as soon as made they should be tied into bundles of convenient size and buried in moist sand. The following spring they should be planted either in the field where they are to remain permanently or in the nursery row. The latter method is usually preferable, as they can be given better care and grown at less expense. They should be planted deep, leaving only the uppermost bud just above the surface of the soil. Some prefer to make the cuttings late in the spring and plant them at once in the field. This is certainly the most economical method.

PLANTING.

The soil should be thoroughly prepared by deep ploughing and enough disking and harrowing to pulverize every clod. Usually clay soils are not ploughed deep enough, especially by the beginner. It must be remembered that the fig is naturally a very shallow-rooted plant, especially where the subsoil is hard and comes up near the surface. Clay soil should be ploughed eight to ten inches deep and then subsoiled to a depth of six to eight inches. This gives opportunity for proper root development, and storage of large quantities of water.

The best time to do the planting is in the spring. Fall planting is not advisable, as the young plant can not endure very much cold until it becomes well established. If the planting is done in the fall or winter the young plant should be entirely covered with dirt until spring.

The distance apart to plant will depend on the variety and the method of training, whether in tree or bush form. Such semi-dwarf varieties as Brown Turkey are usually planted 10 x 10 or 12 x 12 feet apart in this State. Large growing varieties, like Celestial, need more room—15 x 15 to 20 x 20 feet.

For best results the fig should be planted deep. The young plant should be planted from four to six inches deeper than it stood in the nursery row; and then the entire top of the plant should be cut off at the surface of the ground. This induces a number of branches to come out from below the ground, which give the clump or bush form so desirable in the Upper South. If the cuttings are planted in the permanent places in the field the plants should be cut down to the ground one year after planting. Some growers put from three to

five plants or cuttings at each place instead of one, with excellent results.

CULTIVATION AND MULCHING.

One of the most important questions connected with fig culture is that regarding the best method of cultivation. Some advocate no cultivation, contending that it does more harm than good, while others recommend the most thorough kind of cultivation. While good results are obtained from both methods, by far the best results are obtained where the ground is kept mellow, moist, free from weeds, and is cultivated shallow so as not to disturb any roots. The

FIG. 3.—Mulch of Compost; Showing Ideal Condition Under a Fig Tree.

best way to do this is to keep a heavy mulch of compost on the ground under the trees at all times, and to keep the weeds down with a hoe or shallow working cultivator. One of the best fig growers in the State is constantly accumulating compost by putting manure, straw, paper, and all sorts of refuse in a pile and allowing it to rot partly before using. Fig. 3 shows the ideal condition under one of his fig trees. The soil under this mulch is in perfect condition for figs at all times. It never bakes or dries out during summer; and never freezes during winter, which is a very important matter in preventing injury from cold.

MANURE AND FERTILIZERS.

The fig is a gross feeder. There is probably no other fruit tree that can use to advantage such large quantities of plant food. The growth of the plant and the quantity of fruit produced are in direct proportion to the quantity of plant food supplied. One of the most important things in this State is stable manure, as our soils are so deficient in humus and nitrogen. The manure supplies the humus in the best form. This loosens the soil and enables it to store large quantities of moisture, which is essential in growing figs. Another important constituent is lime. Some of our soils are so deficient in lime that they are actually acid, which means that large quantities must be supplied if good crops are desired. From one-half to a ton per acre applied broadcast around the plants will give good results.

The fig also uses large quantities of potash and phosphorous acid. On our clay soils very little potash need be supplied if large quantities of stable manure are used, but on most of the sandy soils it must be supplied. Phosphoric acid can be advantageously applied in the form of ground phosphate rock. This should be put on the compost around the plant, or first mixed with the manure in the stable or on the compost heap. Of course the amount of commercial fertilizer to apply will depend entirely on the fertility and condition of the land, and the intensiveness of the cultural methods. If the trees are suffering from a lack of nitrogen it will usually be indicated by yellowish leaves and stunted growth. An application of 200 pounds of nitrate of soda or 400 pounds of cotton seed meal, per acre, will usually correct the trouble.

IRRIGATION.

The fig bears its fruit in the axils of the leaves; usually one in each axil. The longer the branches, the larger will be the number of leaves, and hence the larger the crop of fruit produced. The crop of fruit then is in direct proportion to the vigor of the plant. To produce a vigorous growth this plant must have large amounts of water. It has often been observed that a fig tree growing near a house where the roots can extend into the moist soil under the house, is usually much more vigorous than one growing in the open ground. Soils which are well supplied with humus, which acts as a great sponge in storing up water, give far better results than soils deficient in humus. Some of the finest crops of figs are grown on bottom land where the soil never becomes very dry.

This State has an annual rainfall of over fifty inches, which if properly conserved is sufficient to grow a good crop of figs. Many of our soils are in such bad mechanical condition, however, that most of this rainfall is lost. On such soils, and during very dry seasons

on good soils, irrigation becomes necessary for best results. This is usually necessary during September and October, when the bulk of the fruit is ripening and at which time comparatively little rain falls. The most economical method of irrigation is where the water can be obtained from some nearby stream or brook. But where this can not be done a pumping plant with a large storage tank is necessary. A good windmill or gasoline engine is excellent for this purpose. A leading grower at Raleigh, North Carolina, gets his water

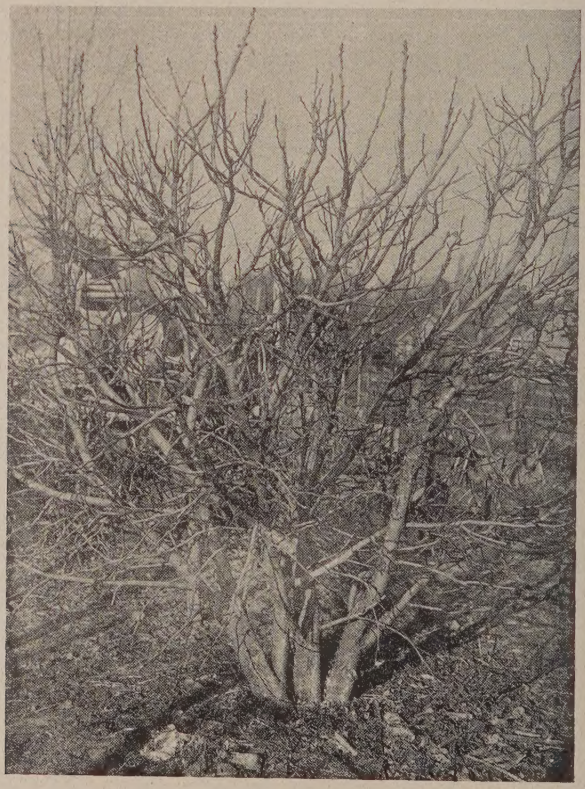

FIG. 4.—Well Branched Fig Tree, Showing Best Form for the Upper South.

from the regular city water supply. He has several hydrants per acre, to which he attaches a long rubber hose so that the water can be carried to every plant. He has used as much as 200,000 gallons a season on one acre, mostly during August and September. His main object is to keep the plants growing and to produce fruit of large size. A heavy mulch should be kept around each plant to get the best results from irrigation.

PRUNING AND TRAINING.

The subject of pruning and training figs has received altogether too little attention in the past. While growers in some sections, especially in the Lower South, have little faith in this operation, it is an absolute necessity for best results in the Upper South. This applies especially to the matter of training. In this State the fig

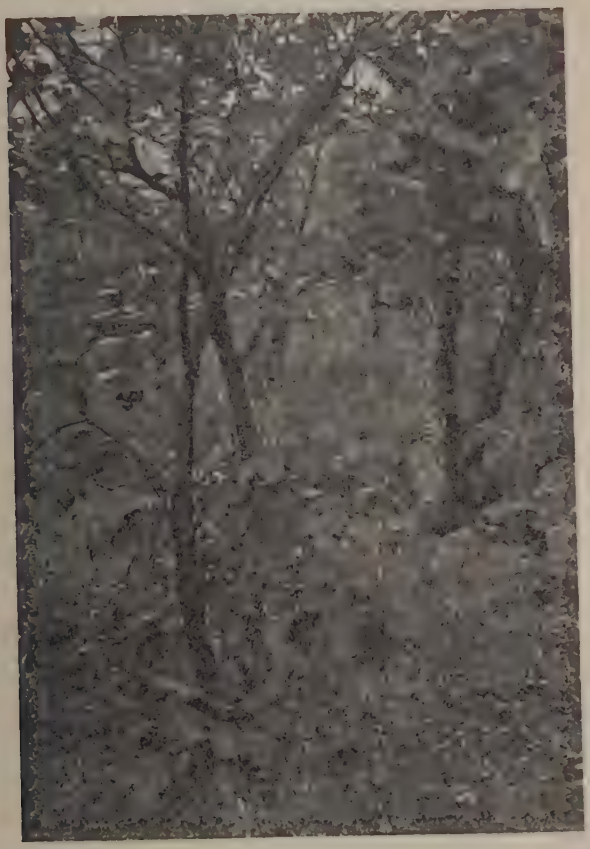

FIG. 5.—Fig Tree Showing the Worthless Sprouts on the Body Which Should be Removed.

should never be grown as a tree; that is, with a single trunk. Every effort should be made to induce it to form a bush or stool. The advantages of this are many; it offers better opportunity for protection against cold; the trees come into bearing earlier should they be frozen back to the ground; they bear more fruit during the first five years; and the fruit is more readily gathered.

As soon as the young plant has been planted it should be cut back to the ground; if cuttings are planted cut them back a year later. If the plant continues to send up only a single stem it should be repeatedly cut back until it throws up the desired number of shoots. If too many shoots come up cut off all but five or six of the best. If these grow vigorously and become too tall and slender they should be pinched back during the first summer or cut back the following winter. Every effort should be made to induce low branching, as shown in Fig. 4.

As soon as the desired shape has been attained and the plant begins bearing, very little pruning should be done. There is little to be gained and much to be lost by pruning a bearing tree of the varieties usually grown here. The principal thing is to cut out entirely all water sprouts, which are long, slender, weak shoots springing from the body of the tree. These should be removed as soon as they appear, and it will be necessary to go over the trees several times each summer. Of course all dead wood should be removed. Wherever the head of the tree becomes too thick, thinning out should be practiced. In all cases where a branch is cut off it should be removed entirely, cutting it off at the base so as to leave no sign of a stub.

WINTER PROTECTION.

In the extreme eastern part of this State no protection is needed during winter, except to locate so as to avoid severe cold winds. No other protection is usually needed in the Lower Piedmont; but it is a necessity during very cold winters, especially while the plant is young. Cold weather like that experienced during the winter of 1899 freezes the plants down to the ground unless thoroughly protected.

There is nothing that injures a fig tree more quickly than cold, severe winds during winter. A fig tree can endure considerably more cold where sheltered than where exposed to strong, dry, cold winds. The first means of protection then is to locate the fig orchard so as to have a group of buildings, a forest, a hill, a high fence, or a high thick evergreen hedge on the north and west sides. If no such place is available, then plant a hedge of California privet along the north and west side of the field; or construct a high board fence.

The second most important matter is to keep a heavy mulch under the trees to prevent freezing of the soil and to keep it moist. This protects the very shallow roots from freezing and supplies moisture to the top, a very important matter in preventing injury from cold.

Until the plants are five years old, the best method of protection is to cover them with dirt. To do this most effectively, the plants are trained to grow in an inclined position, as shown in Fig. 6. During

November they are bent to the ground and covered with dirt. An excellent method to prevent rotting of the branches during warm

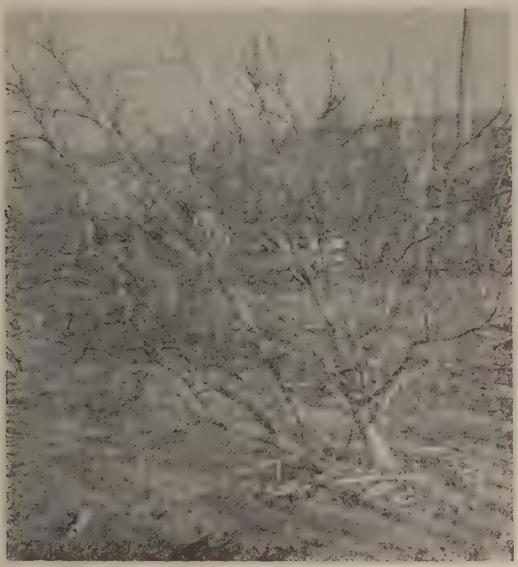

FIG. 6.—Excellent Method of Training Tree to Facilitate Bending Down and Covering During Winter.

weather in winter is to cover them with a large divided banana crate, or similar covering, before putting on the dirt. See Fig. 7.

FIG. 7.—Fig Tree Bent Down and Covered with Banana Crate and Dirt, to Protect From Cold.

After the plants are too large to be bent to the ground the best method is to put a small rope around the bush, draw the branches

together, then bend the whole plant over, stake and cover it, as shown in Fig. 8. For covering, various materials are used, as, boards, slabs, banana crates, canvas, straw, weeds, excelsior, and pine branches. The main object is to exclude the sunlight to prevent the buds from swelling, and to protect the plant from cold winds.

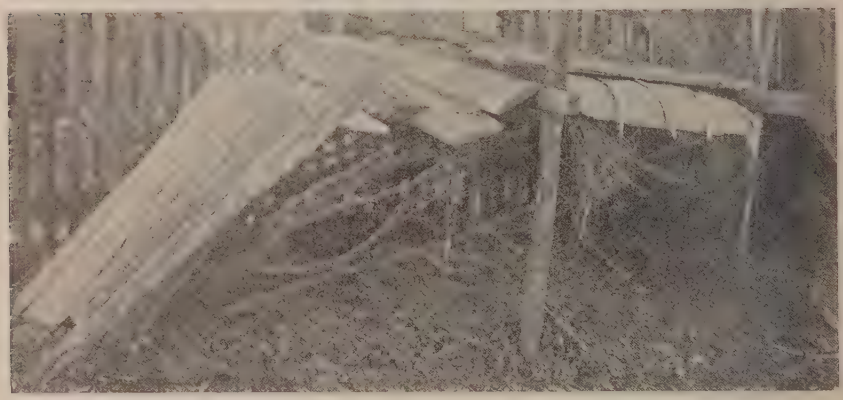

Fig. 8.—Tree Bent Over, Staked and Covered With Slabs to Exclude Sunlight During Winter.

HARVESTING.

The varieties most generally grown in this State produce two crops—one ripening principally during June, known as the "breba" crop, and the other during August, September, and October. The first crop while not ripening very much earlier than the second crop is very distinct from it, as the fruit of this crop is borne on the last wood produced the previous season. The second crop is borne on the new wood of the season. The first crop is small, but the individual figs are very large. The second crop is very large and the individual fruits are medium to large in size.

The trees should be gone over every day during warm weather and all figs that are ripe should be picked. If the fruit is for home use or the local market, it should be allowed to become fully ripe on the tree. The figs will then be soft and of the highest quality. If they are to be shipped to distant markets, they should be picked about two days earlier. If to be used for preserves, they should be picked when fully ripe but before cracking open.

The weather during the picking season should be dry with an abundance of sunshine. If it is rainy and cloudy the figs crack open, are of poor quality, and soon sour on the plant. If there is a heavy dew on the plant in the morning the figs should not be picked until the plants are dry. If a single fig in a box is wet when packed it will often destroy the entire lot within twenty-four hours.

The fruit must be carefully picked by hand and the work done by the best labor obtainable. Every effort should be made in pulling the fruit to have the stem remain on the fig. If it does not it breaks the skin at the base of the fruit, and decay sets in immediately. As the fruit is picked prematurely for market, the stem parts from the branch with difficulty. The most satisfactory way to pick is to clasp the stem instead of the body of the fig, so as to prevent breaking the fruit at the base. This means sore thumbs and fingers, which can be prevented by wearing thin gloves. Another method is to cut the figs off with a small, sharp knife; but unless considerable care is exercised the leaf subtending the fig is also cut off.

In gathering the fruit, never use deep receptacles, as the fruit is certain to be mashed by its own weight. One of the best receptacles for this purpose is the carrier used by strawberry pickers. As soon as picked the figs should be taken to the packing shed without delay.

The fruit of most varieties grown in this State can easily be picked without the aid of ladders. With the larger growing kinds, like the Celestial, a step-ladder is sufficient for this work.

MARKETING.

The fig is one of the most difficult of all fruits to market. The work demands a thorough knowledge of the characteristics of the

FIG. 9.—Crate of Brown Turkey Figs, Showing Proper Method of Packing.

varieties grown, great care in picking and considerable skill in packing. This applies especially to figs sent to distant markets.

By far the best package to ship the fruit in is the regular 24-quart or 32-quart strawberry crate. The six-basket peach carrier has been used, but the baskets are so large that the fruit often mashes badly when shipped long distances.

The fruit should fit snugly into the quart boxes or it is certain to get bruised. It requires twenty-two large figs of our leading variety to fill a quart. These should be placed or packed in the quart box in the following manner: Place nine of the figs on the bottom with stems pointing up. The next layer consists of four figs with stems pointing down; these fit down into the four large spaces around the central fig on the bottom. The top layer consists of nine figs with stems pointing downward. See Fig. 9.

With the smaller fruits no systematic method of packing can be followed. The fruit is simply placed in the quart baskets in the same way as strawberries, with the upper layer arranged in a neat, attractive manner.

The fruit must be perfect. Not a single specimen that is soft, broken, or that shows any signs of decay, should go into the package. The fruit should be perfectly dry or mould and rot will certainly result.

The fruit should be shipped by express; or in refrigerator cars where large quantities are marketed. Never should they be sent by freight except under refrigeration.

As very few fresh figs are shipped to the large cities, there is practically no competition at the present time. This makes the industry a very profitable one. The prices on the Northern markets usually range from ten to thirty-five cents per quart. When planted 15 x 15 feet apart an acre will contain one hundred and ninety-three fig bushes. When well established every bush should produce at least one bushel of fruit. One of the best growers in North Carolina states that his acre of figs has netted him from $300 to $500 a year during the past five years.

The figs which become too ripe for long shipments should be sold on the local market. Many varieties are not at all suited for shipping purposes; these should either be sold on the local markets, preserved or canned.

USES.

The fig is undoubtedly one of the most delicious fruits grown in the South. Furthermore, it is one of the easiest plants to grow, and should be found in every garden.

The fruit is delicious when eaten fresh. This of course does not apply to all varieties, as some are distinctly insipid. But it is true of such varieties as Celestial, Ischia White, and many others. The skin should be removed when eaten fresh to get the exquisite flavors. Still the fruit of the Celestial when left on the tree until it begins to shrivel can be eaten with the skin. With all varieties, the fruit is at its best when left on the tree until it becomes thoroughly soft; this

means that the finest fresh figs will never be found on the distant markets.

Fig preserves are regarded by many as the finest of all preserves, and there is always a good demand for them at excellent prices. This State ought to preserve a ton for every pound preserved at the present time. This is the proper way of disposing of fruit that can not be shipped; especially in remote sections of the State.

The fruit is also excellent when canned, pickled, or when made into marmalade, jam and paste.

The varieties grown in the Upper South are not well suited for drying purposes.

VARIETIES.

The most important characteristic of a variety for this State is

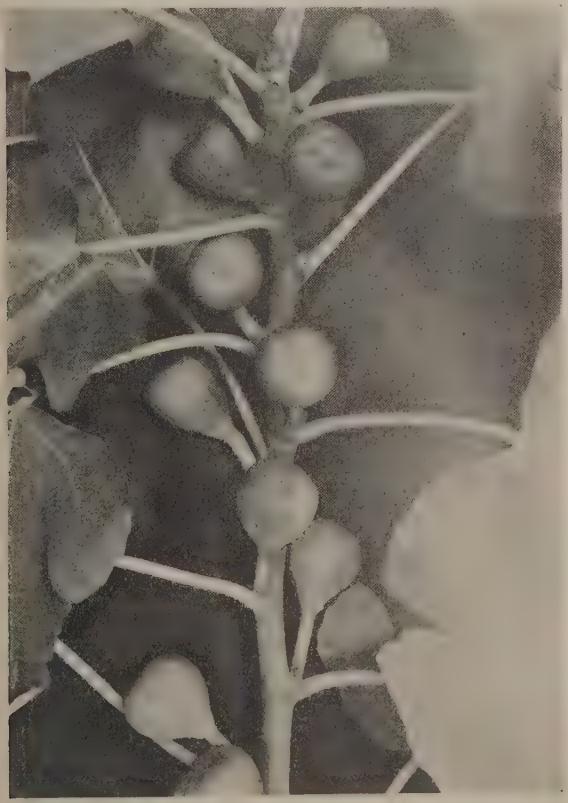

FIG. 10.—Branch of Brown Turkey, Showing Heavy Fruiting Habit. One-third Natural Size.

that it must be hardy enough to endure our cold winters. Very few of the varieties tested so far are hardy enough for this State.

Another important characteristic is that the tree should be a dwarf or semi-dwarf, so that it can be easily protected by covering if necessary.

The leading variety is *Brown Turkey*. This is a variety with semi-dwarf tree, very hardy, and is a heavy bearer. It bears a small crop of "brebas," and a very large second crop ripening from the latter part of July until October. The fruit of the first crop is very large, while that of the second crop is medium to large in size.

Fig. 11.—Branch of Celestial. Two-thirds Natural Size.

The fruit ranks as fair to good in quality. The fruit stands shipment well; and for this purpose it has no equal among all the other figs grown in the State.

For home use, the best variety is *Celestial*. The tree is a strong, vigorous grower and is very hardy. It soon becomes too large to be covered during the winter, and this vigorous growing habit is an objection to the variety in cold climates. The tree bears only one crop, which is usually designated as the second, or main crop, since

the fruit comes on the new wood. The crop is large and ripens during July and August. The fruit is small in size and this is its chief defect; but it makes up in flavor and quality what it lacks in size. It is far better suited for home use and local market than for the general market.

Another variety that has given excellent results and that ought to be more generally planted, is *Ischia White*. It is very productive, and the figs are large and of excellent quality. Unfortunately, it is not so hardy as the Celestial or Brown Turkey.

The Station has tested many varieties of figs during the past, but most of these have proved worthless. The following varieties: Brunswick, Lemon, Ischia Black, San Pedro, and Adriatic White, although commonly found in the State, are not worth the space they occupy.

Among the newer varieties the following are very promising: New French, Peau Dure, and Bourgeassotte Grise. These are being thoroughly tested and we hope to have them tested further in various sections of the State.

The true Smyrna figs are of no value here, and therefore should not be planted except for experimental purposes.

DROPPING OF IMMATURE FIGS.

The Station receives a large number of inquiries every year regarding the dropping of green or immature figs. These come from every section of the State where figs are grown, and often from other States. There are many fig trees in the vicinity of the Station and elsewhere in the State which drop their figs prematurely as regularly as the seasons come.

There are many fig trees in this State which would produce several bushels of fruit every season if it could grow to maturity; but when about two-thirds grown the fruit turns yellowish, begins to shrivel, becomes dry and tough, and then drops. With the first crop it all drops within a few days; while with the second the dropping extends over a long period, each fruit falling as soon as it reaches a certain size or stage of maturity.

Various causes have been assigned for this, such as cold weather, very dry or very wet weather, too rapid growth, poor soil, and lack of proper fertilization. The writer has made a special study of these figs, and has determined the cause in nearly every instance. All persons who had written regarding this trouble were asked to send fruit of these trees to the Station for examination. Many specimens were received from various sections of the State and many others were collected by the writer in this vicinity.

CAUSE OF PREMATURE DROPPING.

In every instance where the dropping was at all serious it was found to be due to the kind of fig grown, and not to the conditions surrounding the plants. At least ninety-five per cent of the figs examined were seedlings of the true Smyrna fig. Most of these seedlings bear fruit very similar to that of the caprifig; very rarely is it like that of the true Smyrna fig. It has long been known that the Smyrna figs, in order to mature their fruit, must be fertilized by pollen from the caprifig. Hence the similarity of many of the Smyrna seedlings to the caprifig. (Fig. 12.)

The caprifig produces two kinds of flowers: the gall flowers which are situated on the sides and bottom of the hollow receptacle, and the male flowers which form a ring around the inside of the eye. The

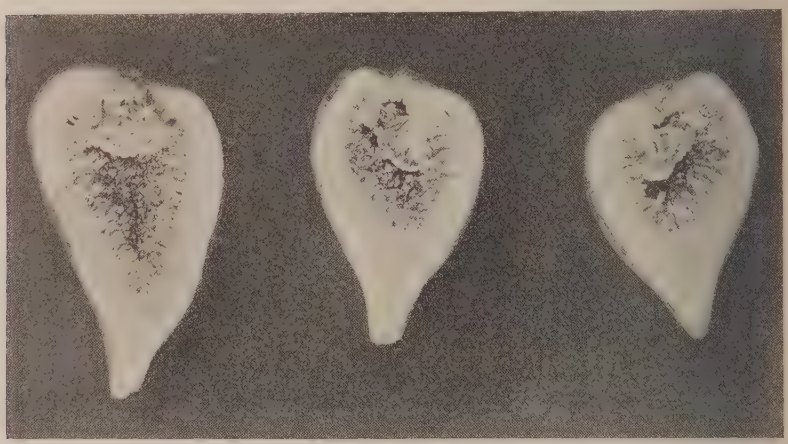

FIG. 12.—Longitudinal Section of a Smyrna Seedling Fig, Showing the Well Developed Male Flowers Immediately Around the Eye, and the Short Gall Flowers. This Type Always Drops Prematurely.

gall flowers serve as a home for small insects, while the male flowers furnish pollen which is carried by these insects to the flowers of the Smyrna figs. If these small insects (Blastophaga) do not lay their eggs in the gall flowers of these caprifigs the fruit falls to the ground long before it ripens.

The flowers of most of the Smyrna seedlings are almost perfect reproductions of the caprifig flowers; and the presence of the same insect is required to bring the fruit to maturity. The fruit of these seedlings, as well as that of the caprifig, would seldom be edible if it did mature. Very rarely a seedling is found which produces pistillate flowers like those of the Smyrna fig and these flowers require the same cross-fertilization that is required by the Smyrna itself to bring the fruit to maturity. (See Fig. 13.)

These small Blastophaga insects have never been introduced into this State; and very likely would not survive the first winter if they were brought here. Furthermore, since the Smyrna figs can not be grown successfully here there is little need for these insects.

These seedling figs, as a rule, are absolutely useless so far as the fruit is concerned; and in this State should be destroyed at once unless wanted for shade.

The question is asked, "Where did these seedlings come from?" In nearly every instance they have been found near outhouses, or on the sites of former outhouses, where the seed of the Smyrna fig had been deposited in the excreta.

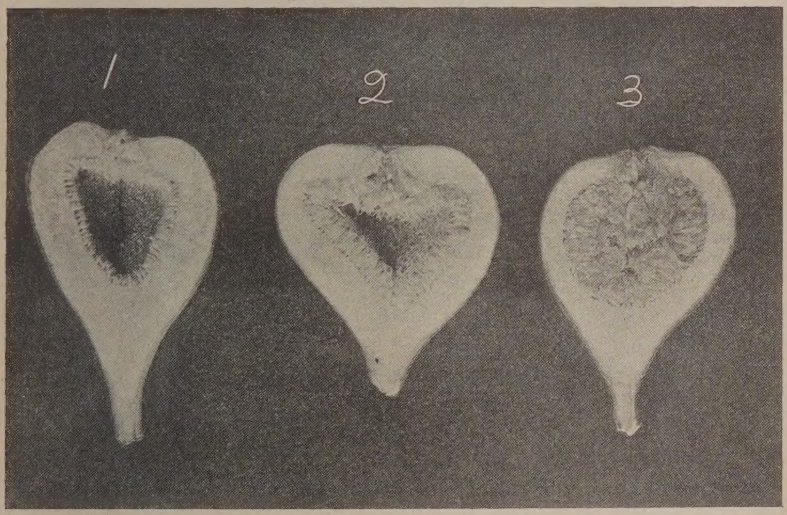

FIG. 13.—Longitudinal Sections of Three Types of Figs: 1. Smyrna Seedling with short gall-and male flowers. 2. Smyrna Seedling with long female flowers. 3. Fig with interior entirely filled with crumpled *mule* flowers. Figs with flowers like 1 and 2 drop their fruit prematurely and are worthless in this State.

In a few instances the San Pedro fig had been planted which also drops practically all of its fruit when grown in the Upper South. The second or main crop of this variety has female flowers like the Smyrna and must be similarly fertilized to ripen its fruit. The first crop of the San Pedro bears *mule* flowers and the fruit develops without fertilization, but this crop is so small in this State that the variety is not worth planting.

The best advice which can be given regarding these figs is as follows: Where a fig tree habitually sheds its fruit prematurely, in the Upper South, it should be cut down without delay; then plant a tree of Brown Turkey or Celestial in its place. Do not plant the Smyrna, San Pedro, or seedlings of any variety.

It should be added that varieties which bear *mule* flowers develop their fruit without fertilization. To this class belong the only varieties worth cultivating in the Upper South; such as Celestial, Brown Turkey, Ischia White, Peau Dure, and many others. These will sometimes shed some of their fruit prematurely, but such shedding is always due to bad environment, and not to the lack of fertilization of the flowers. By proper cultural treatment such dropping can be entirely prevented.

When in doubt as to what class your fig belongs to or what variety to plant, write to this Experiment Station for advice.

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